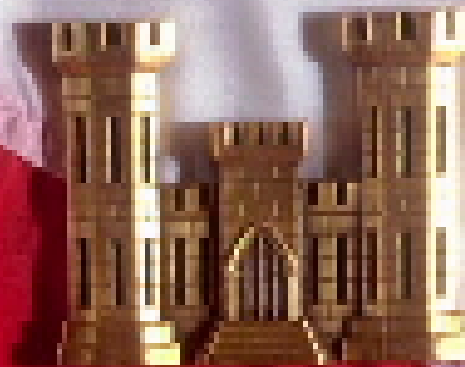


Flood Risk Management Overview

by

***Dave Busse, PE,
Flood Risk Management, Business Line Manager
St. Louis District***

November 26, 2007





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St. Louis District



One Team: Relevant, Ready, Responsive and Reliable



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Flood Risk Management



- Levees
- Reservoirs
- Floodplain Management
- Communication of Risk
- FEMA

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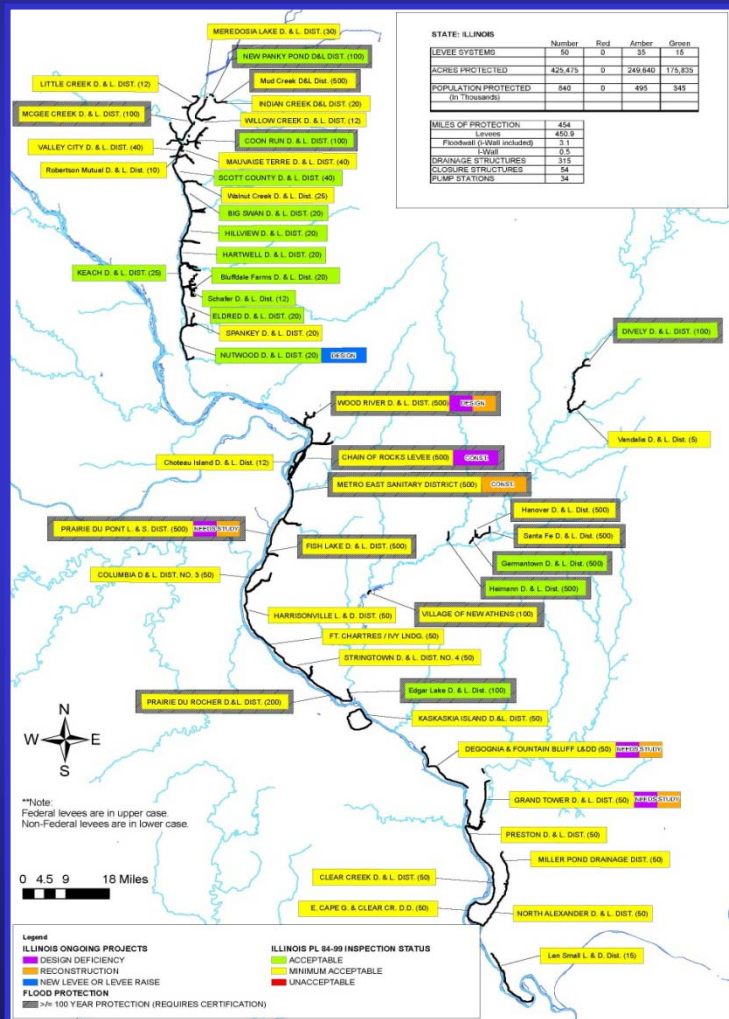


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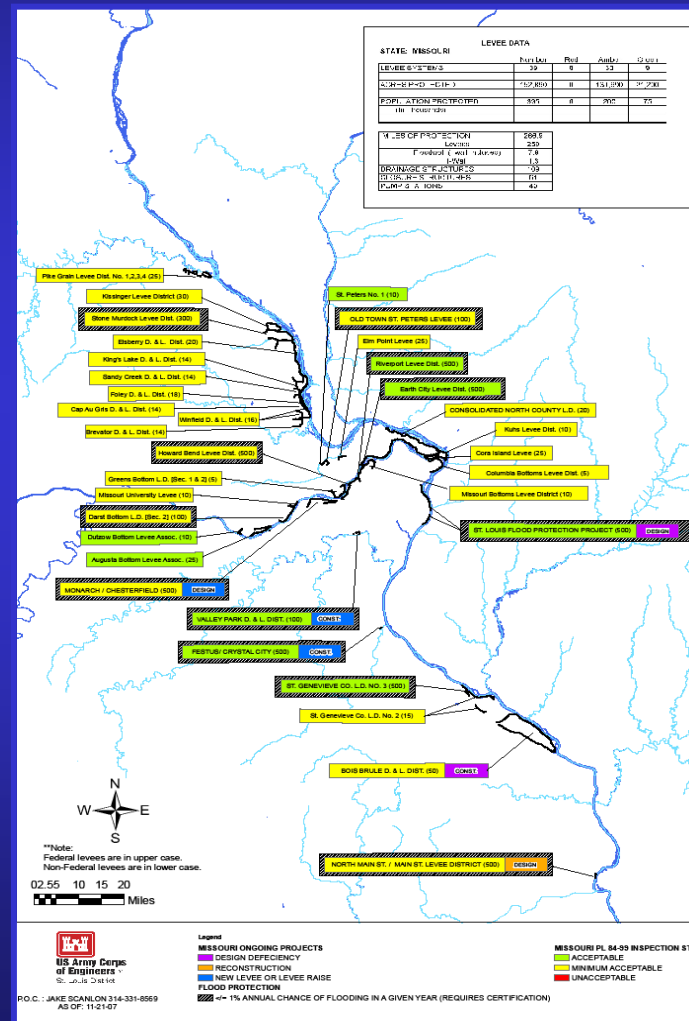
Levee Systems

within the St. Louis District

Illinois Levee Map



Missouri Levee Map



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Levee Systems



■ Illinois

• 50 Levee systems

◆ 17 > 100 year

◆ 33 < 100 year

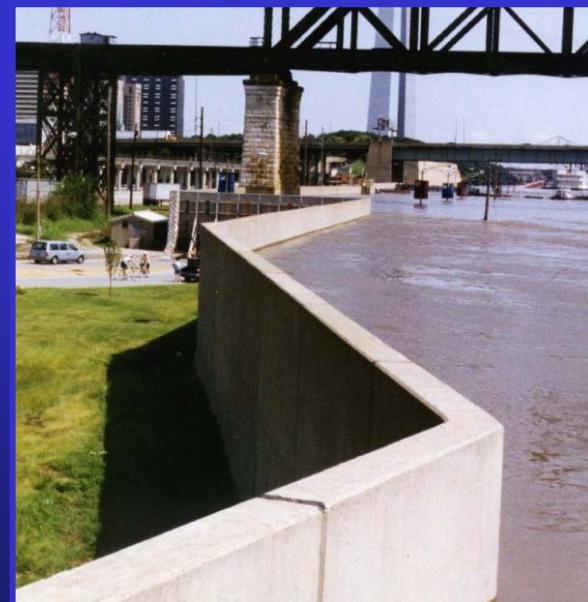


■ Missouri

• 39 Levee systems

◆ 12 > 100 year

◆ 27 < 100 year



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100 Year Flood?



- **“100 Year Flood” = 1% chance in any given year.**
- **A 1% chance = 26% chance of flooding over the life of a 30-year mortgage.**
- **A 1% chance = 63% chance of flooding over the next 100 years.**
- **100 year flood = 1% flood = Base flood**

Levee Systems Interdependencies



- Levees should be looked at as systems.
- The performance of one levee can impact a downstream levee.





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Will the levee perform?



- **Levee Height**
 - Flood flow frequency
 - Settlement
- **Levee Maintenance**
 - Erosion
 - Vegetation
 - Encroachments
 - Deterioration
 - Annual Inspections
- **Levee and Foundation Condition**
- **Past History**
 - 1993/95 floods
 - Flood fighting



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Potential Impacts



■ Direct

- Lives
- Homes
- Businesses
- Services

■ Indirect

- Transportation
- Communication
- Regional/National Commerce
- National Security



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Levee Height



- Design heights are based on flood flow frequency analysis.



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Levee Maintenance & Public Law 84-99 Annual Inspections



■ **Matt Hunn**

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Past History



- All urban protection levees did provide design protection
- Flood events have exceeded design heights of some levee systems
- **THE SYSTEM WORKED!**





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1993/1995 Flood Observations



- **Levee System Issues**
 - Under-seepage
 - Design deficiencies
 - Underperformance
- **Risk Reduction Requires Teamwork**
 - Committed stakeholders
 - Passionate levee districts
 - Corps technical expertise
- **Prevention Is Far Better Than Reaction**



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Aging/Deteriorating Infrastructure



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Magnitude



■ Illinois

- **50** levees/454 miles

◆ ~ \$130 M to restore authorized protection levels to **5** levee systems

■ Missouri

- **39** levees/267 miles

◆ ~ \$70 M to restore authorized protection levels to **4** levee systems

■ Region

- 9 Levees 200 Million dollars
- But we don't know about 80 Levees



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Get the Levees Fixed



- **Unknown magnitude**
- **“Strategy” is important**
 - **Technical fix**
 - **Land use management**
 - **Funding alternatives**
- **People/Businesses should be informed**
- **Focus energy and effort**



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Conclusion



- **Deficient Levees**
- **Solutions Known**
- **Shared Focus**
 - **Fix the levees**
 - **Reduce the risk**
- **Strategy?**
 - **Federal/Non-Federal contribution**
 - **Cost vs. benefit (competing)**
 - **Stakeholder/local/Federal involvement**

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Future



- **Information is Important**
 - **Levee Status**
 - **Understand the risk**
 - **Risk mitigation strategies**
- **Continue to Communicate**
- **Corps is Committed to Risk Reduction**
- **We're in this together – Regional Approach**

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